

# What I learned in Vietnam

MIZUKI YAMASHITA

Tokushima Municipal High School

## Introduction

I will report the kind of consideration that I can make by comparing the quality of water that I examined in Vietnam with that of water in Japan and what I learned about the Vietnam War from the museum and local people.

## Investigation about the quality of water

In this investigation, I investigated water in Japan and water in Vietnam. I investigated the water in terms of eight items—pH, remaining chlorine density, *Escherichia coli*, public bacteria using pack tests, and a comparison of the quality of water in Vietnam and that of water in Japan.

I used 14 samples, including a sample of Japanese water. I measured the pH and electrical conductivity using an exclusive measuring instrument and measured the hardness and residual chlorine by pack tests. In addition, I measured coliform bacteria, the general bacteria, by soaking a sheet in water and placing it in the environment of 37 degrees Celsius for 24 hours and counting the number of colonies. As a result, I show interesting results from the sample that I gathered in Izumisano City and Ho Chi Minh airport in table 1 below.

As consideration, big differences in the water in Vietnam and water in Japan are the values for residual chlorine. It is

established by the law in Japan that all-out residual chlorine is more than 0.4 mg/L or free residual chlorine is more than 0.1 mg/L. But in order not to spoil the taste of the water, our country aims at a value of remaining chlorine about the same as the legal standard.

However, water in Vietnam showed free residual chlorine of 0.4 mg/L, and all-out residual chlorine of 0.6 mg/L. I thought that this was due to the water distribution system in Vietnam. As for the water service in Vietnam, there are many water leaks and the environments where bacteria can easily enter from all around. Therefore, I sterilize it with a large quantity of chlorine to ensure the security of tap water and think that there is considerably more chlorine in comparison with Japan in the water coming out of tap water. When we look at water in Vietnam, judging from the quantity of this residual chlorine, it may be said that there is no great difference from water in Japan.

But water with a lot of chlorine rarely has a big influence on the human body, but there is a disadvantage of the odor peculiar to chlorine like the bleaching powder smell. If a technical aspect to prevent water leaks from the water pipe develops I think that the water supply would be perfect in large areas in Vietnam in comparison with the past, and the water would be more beautiful and safer.

Table 1. Results of water quality examination  
<List1> Result Of Water Quality Examination

Place Of Picking Water	Ho Chi Minh Fountain Of Victory Hotel	Ho Chi Minh Airport Waterworks	Kansai Airport Waterworks	Izumisano City Washington Hotel Waterworks
pH	6.8	5.7	7.2	6.7
Conductivity (mS/cm)	0.099	0.093	0.151	0.160
Total Hardness (mgCaCo3/L)	150	200	200	200
Calcium Hardness (mgCaCo3/L)	100	50	100	100
Total Residual Cl (mgCl2/L)	0.4	0.6	0.2	0.1
Free Residual Cl (mgCl2/L)	0.0	0.4	0.0	0.0
Coliform (CFU/mL)	0	0	0	0
Bacteria (CFU/mL)	3	2	5	5

※ベトナム研修のレポートにおいて、受講生の記載した内容には実際とは異なる部分や水質調査の一部の測定結果には誤差やミスがあるが、原文のまま掲載している。

## The Vietnam War

We visited the War Evidence Museum and general assembly hall in Ho Chi Minh City, and learned about the internal conditions of the Vietnam War that I could learn only there. It has many photographs of the pitiful scars, such as deformities of newborn babies, on the skin of the hands and feet caused by defoliant. Those pictures surprised me very much. Even if the war was over by the use of weapons, the people continued to suffer from the war. As a Japanese citizen of the only country contaminated by war, I understood the terrible sight of the war again and was made to think about the preciousness of peace.

What surprised me was that a lot of Americans came to view the museum. According to a local story, people in Vietnam have little anti-American sentiment. It was a good experience that I was able to have a viewpoint that I could not get by thinking of the World War.



Fig. 1. Influence of the defoliant

## Impression

I had a valuable experience that I could never experience in Japan. I think that it is the result of seeing the real part in Vietnam that was different from the image I had. In addition, one of the major results was that I was able to meet many friends who were interested in science. Whether this experience will become useful or not depends on my actions. I want to live my life with a lot of curiosity.

## Finally

Finally, I would like to thank the ELCAS office at Kyoto University and the people in Vietnam who supported us. Thank you very much for giving me many valuable opportunities.

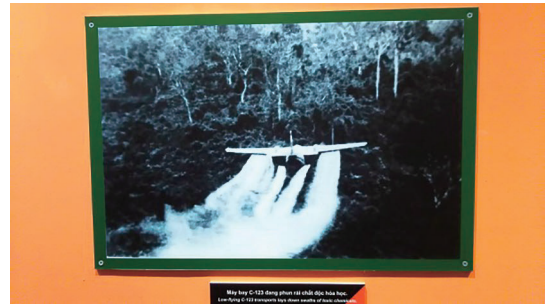


Fig. 2. State of the defoliant dispersion